REMARKS

Claims 1-20 are pending in the application. Claims 1-20 were rejected.

The Specification was objected to because the abstract exceeded 150 words. The abstract has been amended such that it no longer exceeds 150 words. Therefore, Applicants respectfully request that this objection to the Specification be withdrawn.

Claims 1-20 were rejected under 35 U.S.C. 112, second paragraph, because the term "the functions" in Claims 1 and 11 lacks antecedent basis. Claims 1 and 11 have been amended by replacing the first instance of the objected term "the functions" with the term "the function objects." The second instance of the term "the functions" has been replaced with the phrase "functions within the function objects." This amendment is fully supported by the specification as originally filed at page 11, lines 14-27. Since Claims 1 and 11 as now amended have antecedent basis, Applicants respectfully request that the § 112 rejection of these claims be withdrawn. Moreover, since Claims 2-10 depend from Claim 1 and Claims 12-20 depend from Claim 11, Applicants respectfully request that the § 112 rejection of Claims 2-10 and 12-20 be withdrawn.

Claims 1-20 were rejected under 35 U.S.C. 103(a) as being unpatentable over Glass (US Pat. No. 6,629,128). Glass discloses an improved system for distributed processing in a network (a distributed object management system) (col. 3, lines 62-67). Glass explains that "[c]urrently, a system developer must anticipate all necessary remote proxies and create the remote proxy classes" (col. 6, lines 35-36). Moreover, the "remote proxy classes must be kept in sync with the subject classes as the subject classes and interfaces are modified" (col. 6, lines 43-45). In response to these shortcomings, Glass provides a system which dynamically generates remote proxy classes whenever they are needed at runtime to enable a client system to manipulate data and services resident on a server system. Specifically, Glass provides a remote proxy generator, residing in the object request broker of the server system, which instantiates the remote proxy class to create a remote proxy object through which a client system may access data and services resident on a server system. The remote proxy objects are created in response to requests by client systems to server systems.

The Applicants' invention, on the other hand, is directed to a method for generating an emergent model of a physical system. Each object, whether it is a data object or a function object, represents some part of a model of a physical system. Applicants use a distributed object management system to create distributed computational models of physical systems. Glass, on the other hand, describes an improvement on distributed object management systems.

According to the principles of Applicants' invention, relationships in emergent models may be functional (e.g., $y = m*x + b$, where y, m, x, b are modules or objects representing numbers), referential (e.g., module z is a pointer to module y), or procedural (e.g., module x depends on a value from module y before it will perform its action). In contrast, Glass describes relationships between proxy objects and objects of the server from which proxy objects are created.

According to Applicants' invention, a model emerges as data objects and/or function objects link together to form a network. Objects link together when the data objects and/or function objects are independently published and subscribed to in a manner free of a globally predefined network of data objects and/or function objects.

Glass does not teach "publishing references to data objects and/or the function objects" and "subscribing to the data objects and/or function objects by creating relationships between the data objects and/or the function objects through referencing the data objects and/or the function objects within the function objects, thereby linking the data objects and/or the function objects, wherein networks of linked data objects and/or function objects emerge" as claimed in now amended Claim 1. The reference objects taught in Glass handle communication protocol details in a reference layer. Thus, the term "references" of Claim 1 is unlike the reference object described in Glass. As stated in Glass, "the present invention removes the hard coded communication protocol information from the remote proxy 154 and places it in reference layer 136 where a reference object 158 handles the communication protocol details" (col. 13, lines 30-34). These reference objects are neither published nor subscribed to. The reference objects automatically handle communication protocol details to enable a client system to manipulate a server system's data and services.

In addition, Glass does not teach "defining at least one of the data objects and/or function objects as an input object and defining at least one of the data objects and/or function objects as an output object to a search engine, the search engine generating changes to the input object until the output object satisfies a predefined criteria" as claimed in now amended Claim 1. Glass describes Object Request Brokers (ORBs) that "receive messages, determine the location of the receiving object, route the message to the receiving object, and perform all necessary platform and language translation" (col. 3, lines 4-7). The ORBs perform routing and language translation services, but they do not define an input object and an output object to a search engine that generates changes in the input object until the output object satisfies a predefined criteria. Therefore, once again, Glass does not teach or suggest every claim limitation of now amended Claim 1 as required by 35 U.S.C. 103(a).

The Examiner is correct in asserting that Glass does not explicitly teach sending messages when objects change and "solving functions within the function objects when the messages are received" as claimed in now amended Claim 1. Glass does provide an improved distributed object management system to which Applicants' invention could be applied. However, Glass does not teach solving functions within function objects based on the receipt of messages. The objects described in Glass simply provide a means for dynamically generating remote proxies for use by a client system. Therefore, Glass would not make obvious to one of ordinary skill in the art the solving of functions within function objects when messages are received as claimed in now amended Claim 1.

Since Glass does not teach or suggest every claim limitation of Claim 1 under 35 U.S.C. 103(a), Applicants respectfully request that the rejection of Claim 1 be withdrawn. Since Claims 2-10 depend from Claim 1, Applicants respectfully request that the rejection of these claims be withdrawn for at least the same reasons supporting withdrawal of the rejection of Claim 1.

Since Claim 11 has the identical claim limitations as Claim 1 discussed above, Applicants respectfully request that the rejection of Claim 11 be withdrawn. Since Claims 12-20 depend from Claim 11, Applicants respectfully request that the rejection of

these claims be withdrawn for at least the same reasons supporting withdrawal of the rejection of Claim 11.

New Claim 21 is dependent on independent Claim 11 and thus is novel and nonobvious over the prior art for at least the reasons argued above for Claim 11. Support for now added Claim 21 and the amendment to the preamble of Claim 1 is found at least on Specification page 4, lines 12 - page 5, line 17 as originally filed. No new matter is introduced. Acceptance is respectfully requested.

CONCLUSION

In view of the above amendments and remarks, it is believed that all claims (Claims 1-21) are in condition for allowance, and it is respectfully requested that the application be passed to issue. If the Examiner feels that a telephone conference would expedite prosecution of this case, the Examiner is invited to call the undersigned.

Respectfully submitted,

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